

REMARKS

Claims 1- 6 stand rejected under 35 USC 103(a) as being unpatentable over (obvious from) Matsubara US Patent 3,928,021. However, Matsubara is a fluidized bed process, whereas the present invention is useful only with a packed bed shaft furnace process. Claim 1 has been amended to clarify this point, and to clearly set forth that the temperature of the preheated feed material is increased from the introduction temperature to about 750°C within the first 20 minutes after charging the feed material into the furnace. Claim 1 also has been amended to clarify that the direct reduction process of the present invention is a moving bed shaft furnace process, which is also known as a “packed bed” process. In such process lumps and/or pellets are fed into a shaft furnace to form a packed bed burden therein, which differs markedly from a fluidized bed process in which the reduction is carried out while finely divided metal oxide particulates are in a fluidized state.

With respect to claims 5 and 6, a reformer changes gaseous oxidants CO₂ (carbon dioxide) and gaseous H₂O to reductants CO (carbon monoxide) and H₂ (hydrogen). A gas reformer is not equivalent to a heavy oil gasifier. After gasification, the oil still needs to be further treated for use as a reducing agent equivalent to applicants’ reductants CO (carbon monoxide) and H₂ (hydrogen).

New claim 8 has been added to set forth that the temperature of the preheated feed material is increased from the introduction temperature to about 750C while the feed material descends the

first half meter of the shaft furnace. Antecedent basis for this claim appears on page 8, lines 19-21 of the Specification..

Claim 7 stands rejected as obvious from Matsubara. and further in view of Becerra-Nova US Patent 5,445,363. Claim 7 depends from claim 6, and contains all of the limitation of claim 6 therein, thus claim 7 is not obvious from the cited references within the meaning of 35 USC 103.

Clearly, therefore, all of claims 1 through 8 are not obvious from the cited references within the meaning of 35 USC 103.

Claims 1 to 5 stand rejected under 35 USC 112 as indefinite for failing to employ the degree symbol between the temperature and the letter C. By this amendment, the symbols have been changed as requested.

Claims 6 and 7 are provisionally rejected under the judicially created doctrine of double patenting over claims 7 and 8 of co-pending Application No. 10/789,694, filed of even date. Upon Allowance of one of the applications, Applicants will consider deleting any identical claims from the other application.

Since the amendment to the claims does not add more claims than previously paid for, no additional fee is required.

In view of the foregoing amendment and these remarks, this application is now believed to be in condition for allowance and such favorable action is respectfully requested on behalf of applicants.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Ralph H. Dougherty', written over a horizontal line.

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